IN THE CLAIMS:

Please amend the claims as shown below, in which deleted terms are shown with strikethrough and/or double brackets, and added terms are shown with underscoring. Please add new claims 23-25 shown below. This listing of the claims will replace all prior versions, and listings, of claims in the application.

1-5. (Canceled)

6. (Currently amended) A surface treatment method of a casting die made of a steel material, said method comprising the steps of:

applying a first shot peening treatment to at least a cavity surface of said casting die, so that a maximum height of roughness of said casting die is not more than 16 [[mm]] μm, and a compressive residual stress of said casting die is 1000 MPa or larger after the first shot peening and before a sulphonitriding treatment,

applying a sulphonitriding treatment after applying said first shot peening treatment, and

applying a second shot peening treatment after applying said sulphonitriding treatment to said at least [[a]] the cavity surface of said casting die, so that a maximum height of roughness of said cavity surface is not more than 8 μm, and the compressive residual stress is larger than 1200 MPa after the second shot peening treatment,

wherein each of said shot peening treatments is performed for a time period ranging from 5 seconds to 10 seconds.

7-9. (Canceled)

10. (Previously presented) The surface treatment method of said casting die according to claim 6, wherein said surface treatment method is applied to said casting die after the die has been used for casting operation.

11-13. (Canceled)

14. (Previously presented) The surface treatment method of said casting die according to claim 6, wherein hydrogen gas is applied to said cavity surface during said nitriding treatment.

15. (Canceled)

16. (Previously presented) The surface treatment method of said casting die according to claim 6, wherein ammonia gas, hydrogen sulfide gas, and hydrogen gas are applied to said cavity surface during said nitriding treatment to form a compound diffusion layer containing both iron sulfide and iron nitride.

17. (Currently amended) A steel die for use in casting metal workpieces, the die having a cavity surface formed therein and being a product of a process comprising the steps of:

a) performing a coarse peening step, such that a maximum height of roughness of said cavity surface is not more than 16 [[mm]] μm and the compressive residual stress of the die is 1000 MPa or larger after the coarse peening step and before a sulphonitriding treatment;

b) after the coarse peening step, applying a gaseous mixture comprising a sulfurizing gas and a nitriding gas to the cavity surface of the die in a sulphonitriding treatment performed in a

processing chamber under controlled temperature conditions to form a sulphonitrided diffusion layer on said cavity surface; and

c) subsequently, performing a finishing peening step;

wherein, after the finishing peening step, a residual stress of the cavity surface is larger than 1200 Mpa, and the maximum height of roughness of the cavity surface is not more than 8 μm.

18. (Previously presented) The steel die of claim 17, wherein the coarse peening step comprises applying water-borne ceramic particles to the cavity surface of the die, the ceramic particles having particle diameters between 200 and 220 mesh, and wherein the finishing peening step comprises applying water-borne glass particles to the cavity surface of the die, the glass particles having particle diameters between 200 and 220 mesh.

19. (Previously presented) The steel die of claim 17, wherein the temperature in the processing chamber is maintained in a range between 505 degrees Celsius and 580 degrees Celsius during the gaseous mixture application step.

20. (Previously presented) The steel die of claim 17, wherein the gaseous mixture comprises ammonia gas, hydrogen sulfide gas, and hydrogen gas.

21. (Currently amended) The surface treatment method of said casting die according to claim 6, wherein said first shot peening step involves discharge of water containing ceramic particles of 200-220 mesh at a pump discharge pressure of 0.39-0.59 MPa such that the ceramic particles collide against the cavity surface for 5-10 seconds~~/5 cm^2~~, and said second shot peening step involves

discharge of water containing glass particles of 200-220 mesh at a pump discharge pressure of 0.29-0.49 MPa such that the ceramic particles collide against the cavity surface for 5-10 seconds~~/5 cm^2~~.

22. (Currently amended) The steel die of claim 17, wherein said coarse peening step involves discharge of water containing ceramic particles of 200-220 mesh at a pump discharge pressure of 0.39-0.59 MPa such that the ceramic particles collide against the cavity surface for 5-10 seconds~~/5 cm^2~~, and said finishing peening step involves discharge of water containing glass particles of 200-220 mesh at a pump discharge pressure of 0.29-0.49 MPa such that the ceramic particles collide against the cavity surface for 5-10 seconds~~/5 cm^2~~.

23. (New) The surface treatment method of said casting die according to claim 6, wherein said steel material is an SCM chrome molybdenum steel material and after said second shot peening treatment said at least the cavity surface of said casting die has a hardness of at least 700 Vickers hardness.

24. (New) The surface treatment method of said casting die according to claim 6, wherein said sulphonitriding treatment step is performed in a processing chamber under controlled temperature in a range between 505 degrees Celsius and 580 degrees Celsius.

25. (New) The steel die of claim 17, wherein said die is formed of an SCM chrome molybdenum steel material and after said finishing shot peening step said cavity surface of said casting die has a hardness of at least 700 Vickers hardness.